

Age and Attitudes: Where's the Action? Life-Cycle and Cohort Effects on Support for 'Europe'

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Abstract

Despite much research on age and attitudes, it remains unclear whether age reflects accumulated life experience or conditions prevailing during an individual's formative years – that is, a *life-cycle* effect or a *cohort* effect. In respect to attitudes towards the European Union (EU) the issue is particularly important. Although many analyses indicate a correlation between age and support, the relationship has not been adequately theorized and extant analyses have generated contradictory results. We develop theoretical expectations for both life-cycle and cohort effects on support for the EU, and test those expectations using a cross random effects model. In so doing, we not only identify the nature of an age-support relationship but also explain the inconsistencies in extant empirical analyses.

For much of the last fifty years European integration was an elite driven process. Public opinion, following Lindberg and Scheingold (1970), provided a ‘permissive consensus’ – the public was generally supportive of the process and willing to leave decisions to political elites. The Danish rejection of the Maastricht Treaty, in 1992, effectively signaled the end of this consensus. Since then, at four additional referendums, national publics rejected proposals for further integration (Ireland, the Nice Treaty, in 2001; France and the Netherlands, the Constitutional Treaty, in 2005; and, Ireland, the Reform Treaty, in 2008). In tandem, aggregate public support for the EU declined from its high point in the early 1990s and the European public appears more divided on the EU’s merits than at any time in the last three decades (e.g. Eichenberg and Dalton, 2007; Down and Wilson, 2008). More importantly still, numerous studies also indicate that positioning on the EU affects the performance of parties at national elections (e.g. Carruba, 2001; Evans, 1999; Evans and Butt, 2007; Gabel, 2000; Kriesi, 2007; Tillman, 2004). In short, not only does public opinion on the EU matter, but understanding that opinion appears increasingly important for understanding both the future of the EU and the domestic politics of the member states.

If we are to deepen our understanding of public opinion and enhance our capacity to develop predictive models we need to engage in closer examination and testing of the theoretical predicates of our models. One area that requires better theorizing and testing concerns the effect of age on attitudes towards the EU. Many recent studies indicate that the young are more supportive than the old (e.g. Brinegar and Jolly, 2005; Fligstein, 2008; McLaren, 2002 and 2006; Rohrschneider, 2002; Steenbergen and Jones, 2002). Yet, some of the earliest work showed either no consistent relationship or a positive relationship between age and support for the EU (e.g. Anderson and Reichert, 1995; Gabel 1998a and 1998b). Which finding, if either, is accurate is important, not only because they imply opposite outcomes for future opinion on the EU but also because age could theoretically be tapping two quite distinct and independent effects. Specifically, age may represent a life-cycle effect, in which attitudes towards the EU vary across the life-cycle, either becoming more positive or negative as individuals age. Alternatively, age may represent a generational effect, in which different cohorts display systematically different attitudes towards the EU.

Identifying which, if either, of these two effects is at work is important because, as we elaborate in more detail below, if they are both operative they may work at cross purposes to one another. Thus, for example, if support for the EU is negatively/positively related to age then in conjunction with the population aging process evident in Western Europe a life-cycle effect implies declining/increasing future support for the EU as the elderly comprise an ever larger proportion of the population. Conversely, however, if a negative/positive relationship between age and support is tapping a generational effect, then

future support for the EU may increase/decrease as older cohorts are replaced by their younger counterparts. Accordingly, both the possibility that age is reflective of different underlying processes and the apparently contradictory nature of extant findings suggests we need to both accurately theorize the effect of age on attitudes, as well as determine whether age is indeed systematically related to support for the EU.

To briefly presage our findings, we do find a statistically significant relationship between age and support for the EU, and one that is composed of both a life-cycle and a generational component. In the following we first explain the theoretical bases for respectively a life-cycle effect and a generation or cohort effect on attitudes towards Europe. We then highlight a methodological problem that any analysis confronts in attempting to parse the effects of life-cycle and cohort, and explain how we address that problem. Next, we provide the analyses and illustrate how and why it is that different studies of public opinion towards the EU have generated seemingly contradictory findings, as well as reconciling those apparent contradictions. Finally, on the basis of the results and what we know of the population ageing process in Europe, we also produce some preliminary forecasts of the effects of age on future public attitudes towards the EU.

Theorizing Life-Cycle and Generational Effects

Considerable research has addressed the question of the relationship between age and political attitudes (see, for example, Alwin and Krosnick, 1991; Cutler, 1976; De Vries, 2005; Dirk De Graaf and Evans, 1996; Inglehart, 1971, 1990 & 1995; Jennings, 1987 & 2002; Jennings and Niemi, 1978 & 1981; Krosnick and Alwin, 1989; Lewis-Beck, et al, 2008; Tilley, 2000 & 2002). Yet it remains unclear whether age represents a measure of accumulated life experience or a measure of the conditions prevailing during an individual's formative years – that is, whether age represents difference across the *life-cycle* or difference between *generations*. In some instances resolving the issue can be critical to our understanding of observed political attitudes, and support for the European Union (EU) is a case in point. Increasingly, studies of attitudes towards the EU indicate that the young are more supportive than the old (e.g. Brinegar and Jolly, 2005; Fligstein, 2008; McLaren, 2002 and 2006; Rohrschneider, 2002; Steenbergen and Jones, 2002). Whether this results from a life-cycle effect, in which individuals are more supportive when young than when old, or, a generational effect, in which more recent cohorts are more supportive than older cohorts, has not been determined.

A life-cycle effect is rooted in the opportunities the EU affords individuals at different stages of their lives. In general, the young are better placed to take advantage of the opportunities created by the

EU, particularly for traveling, living, working and studying in other countries than are older adults. The young are less nationally rooted because they lack the responsibilities and concerns that typically come to encumber individuals as they age. Thus, for example, supporting and raising children, possibly servicing a mortgage, maintaining and developing a job/career (where opportunities remain primarily structured by national labor markets), along with the need to save and prepare for retirement all serve to constrain and limit the options of older adults. As such, at each age, the proportion of the public directly advantaged by opportunities arising from European integration should be smaller and thus so to should support for the EU. It is worth noting that whether or not the young actually take advantage of the opportunities afforded by the EU should be of little importance in structuring attitudinal differences. What matters is that those opportunities exist for the young in a way that they do not for the old. In short, over the life-cycle we should expect to find a negative relationship between age and support for the EU. There is certainly anecdotal evidence for the proposition since the public in general identify the young as far more likely to be winners from the process of European integration, than the middle-aged or the elderly (McLaren, 2006).

Hypothesis One: Support for the European Union declines across the life-cycle, such that older Europeans are less supportive than younger Europeans.

The alternative basis for an age-support relationship rests on differences between cohorts, or generations. In this view attitudes are fundamentally shaped during adolescence, even if they are not necessarily entirely fixed and unchanging over the life-cycle. Adolescence is critical for political socialization because it is during adolescence that individuals are at their most impressionable (Jennings and Niemi, 1978; Jennings and Niemi, 1981; Sapiro, 2004). Thus, the conditions prevailing during adolescence are thought to structure the attitudes of individuals in a manner that persists throughout their life-time. As a result, generations may differ from one another in their attitudes due to differences in the social and political environment prevailing during their formative years (Alwin and Krosnick, 1991; Inglehart, 1971 and 1990; Mannheim, 1952).¹

¹ It should be noted, however, that not all members of a given generation will necessarily have the same relationship to a given environment or event(s) (Jennings, 1987 and 2002; Mannheim, 1952; Sapiro, 2004). Thus, for example, young people on either side of a civil war are likely to have quite distinct but different attitudes towards the war rather than a single cohort perspective. We might, accordingly, conceive of ‘generation units’ – “the different relationships people from a single generation had with the original event” (Sapiro, 2004). Yet, as we develop below, when theorizing cohort effects on attitudes towards the EU, because there are few if any major events likely to throw up radically distinct groups within a given generation we are unlikely to observe such ‘generation units’ and each cohort is most appropriately modeled as a single group.

To understand generational differences in attitudes towards the EU we argue that two relatively uncontroversial aspects of the process of European integration are important - that the integration process is unidirectional and that public opposition to the EU is based in concern over the loss of national autonomy. The process is unidirectional in the sense that over time there has been progressively more integration. It is certainly true that integration has moved forward somewhat erratically and at a variable pace, both in terms of the EU's function and its membership. However, at no point in the last fifty years has integration ever meaningfully or substantially been rolled back, in respect of either function or membership.² In consequence, each new generation of Europeans has come of age in a Europe that is progressively more integrated than was the Europe of its predecessors.

The second point to note is that at the core of Euro-sceptic attitudes (i.e. lack of support for the EU) is concern with the loss of national autonomy. The issues raised by the loss of autonomy vary quite markedly. On the left there is concern that the EU limits and undermines the capacity of national governments to regulate the national economy. On the right is the converse concern that regulations emanating from Brussels burden and constrain national economies. Some Greens are concerned with EU restrictions on the capacity of governments to pursue national environmental goals. Far-right parties are concerned with the loss of control over immigration and the fear of a consequent dilution of national culture and identity as immigration increases. Crucially, however, all critics of the EU are concerned with the loss of national autonomy that has accompanied the integration process. Opposition to the integration process is, at root, opposition to the process through which national autonomy has been surrendered to the EU.

The foregoing points are important for cohort differences in attitude towards the EU because each new generation has come of age in a more integrated Europe, and thus an EU to which more national autonomy has been surrendered. The level of national autonomy at the point in time at which a cohort comes of age can be thought of as the status quo for that generation – that is, the level of national autonomy that that generation will deem appropriate, or a baseline level of national autonomy, all else equal. Thus, the older the cohort the greater was the extent of national autonomy in that cohort's formative years. Alternatively put, the younger the cohort the more integrated was Europe when they came of age.

² The one possible exception is Cohesion Policy and Structural Funds, where it has been argued that some “re-nationalization” of policy took place in the 1990s, though the assertion remains contentious (see, for example, Bachtler and Mendez, 2007).

The difference in the extent of national autonomy in a cohort's formative years ought to affect attitudes towards the EU for two reasons. First, we might expect these differences to issue in a differential predisposition to Euro-scepticism. Younger generations with less experience of national autonomy should be less receptive to Euro-scepticism than their older counterparts. The sense of loss that is implicitly associated with Euro-scepticism is much less likely to resonate with younger generations, since younger generations are much less likely to bemoan a loss of national autonomy that they have never known. Moreover, younger generations may also be just as concerned about the consequences of rolling back the EU as about the consequences of further integrative steps. Rolling back the EU and re-establishing a greater degree of national autonomy may entail a reconfiguration of the world that is as equally unfamiliar to younger generations as a world in which there is yet further, deeper integration. In contrast, for older generations rolling back the EU may actually have a nostalgic appeal, entailing the return to a familiar, possibly more secure world.

Second, the younger the cohort the deeper the extent of European integration in that cohort's formative years and thus the greater the relative prominence or importance of the EU at the time the individual came of age. For example, an individual coming of age in the 1990s did so in an EU in which individuals had the right of free movement across Europe; in which the European Court of Justice provided an added measure of rights protection beyond national law; and an EU with symbols to anchor an affective attachment (i.e. a flag, a currency, passports, citizenship, driving licenses, license plates, an anthem, and even Europe Day³). In contrast, an individual coming of age in the 1960s was socialized in what could at best be described as a nascent 'Europe', with no European Economic Community-wide freedom of movement, no rights separate from those guaranteed by the national state and no symbols to anchor an affective attachment. In short, the very bases for identification with the EU have only developed over time, with the process of integration. Indeed, there was concern with fostering such attachments from the beginning of the project and early scholars anticipated such developments (e.g. Deutsch, et al, 1957; Haas, 1958). Consequently, to the extent that individuals have developed an attachment to the EU, it should be most evident in more recent generations. This is important because there is increasing evidence that those that self-identify as 'European' are more supportive of the EU than those that do not (Fligstein, 2008; Hooghe and Marks, 2005; McLaren, 2006). Accordingly, we might also expect more recent generations to be more supportive of the EU.

³ The relative importance of the anthem and Europe Day is debatable given that public awareness of them remains relatively low – in a Eurobarometer (2002) quiz on the EU only 27 per cent answered “true” to the statement “The European Union has its own anthem” and only 34 per cent answered “true” to the statement “Each year, Europe Day is observed in common by all Member States of the EU”.

There is certainly evidence to the effect that the young today are more likely than the old to self-identify with Europe (Fligstein, 2008). The young are also less likely than the old to perceive the integration process as a threat to national autonomy (McLaren, 2006: 106). Consistent with this, as McLaren has (2006: 102-6) illustrated, the young are also less likely than the old to perceive immigrants as a threat to national culture. The young are also more likely than the old to be engaged with social and political movements that transcend national borders, such as opposition to globalization, the environmental movement and women's movement (Inglehart, 1990 and 1995; Tilley, 2000). In short, on a number of dimensions the EU appears more in tune with the affective orientations of the young than the old.

Hypothesis Two: Support for the European Union is greater in more recent cohorts than older cohorts.

The preceding discussion is certainly anecdotally supportive of the notion that younger cohorts will be more supportive of the EU than older cohorts. Yet, as noted at the outset, we cannot rule out the possibility that these attitudinal differences are reflective of a life-cycle rather than a generational effect. Even if younger Europeans evince a greater affective attachment to the EU than older Europeans, this could well be reflective of youthful rebellion or a dalliance that effectively dissipates with time, age and a change in material and life circumstances in all generations, as we argued earlier would occur with a life-cycle effect. As a result, whether life-cycle and cohort effects are at work and, if they are, which predominates is ultimately an empirical question. How to tackle these questions empirically is the issue to which we now turn.

Data and Methodology

In distinguishing between life-cycle and generational effects, an additional factor is likely to be important—period effects. The use of time-series data (such as ours described below) necessitates some effort to control for the effects of time inherent in time varying processes. Moreover, virtually all cross-time studies of the EU control for time because it is typically significant. Ideally, since we do not know the precise processes that underlie the formation of attitudes toward the EU, we would like to make as few assumptions as possible about period effects and allow these effects to vary not only annually but also for each country. In consequence, however, the period effects will likely explain a considerable amount of variance in the model. As such, the estimates for any life-cycle or cohort effects that we identify are likely to be very conservative.

When measures of time are included in a model with age and cohort, there is a potential identification problem. If each birth year marks a separate cohort, and each period of interest is a single year, then knowing the cohort to which the individual belongs, and the period in which age and cohort are measured, one can determine the respondent's age, as $\text{Age} = \text{Period} - \text{Cohort}$. The problem of identification is well known in studies of this type and there are a number of possible ways to approach identification (see for example, Feinberg and Mason, 1985; Tilley, 2002). In order to estimate the effects of each of age, period, and cohort individually, we construct cohorts that encompass more than one birth year. This is consistent with our theoretical expectation that there are not sharp differences between cohorts born from one year to the next, but that distinctions are caused by relatively small changes over time such that meaningful divisions are only observed between those whose formative years are temporally distant from one another. Yang and Land suggest this as a convenient way to identify such models, arguing that "...meaningful cohorts often are considered to be of durations longer than single years, it then will be feasible to group the cohort dimension into multiyear periods while retaining single-year measurements for the age and time period dimensions" (Yang and Land, 2008: 302). In constructing the cohorts in this manner, the model is no longer perfectly collinear--knowing a respondent's cohort and the period, one cannot determine the exact age of the respondent, only a range of possible ages. This is a sufficient condition to identify a model containing all three effects - age, cohort and period.

Our analysis employs Eurobarometer data, and because these are repeated cross-sectional surveys, the data structure is *cross-classified*. That is, individual respondents share commonalities by virtue of their membership in different *clusters*—country, period, and cohort.⁴ These commonalities (for period and cohort) are indeed quantities of interest in this project; they are the effects of cohort and period on support for integration. We therefore use a model that is specifically designed to deal with this type of data—a *cross random effects* model (Yang and Land, 2008). This approach is able to account for the clustering (that violates the assumption of independent observations) at multiple levels by specifying random effect components, ζ , which represent the individual's deviation from the overall mean due to her membership in a particular cluster. These deviations are assumed to be random realizations from a normal distribution with a mean of zero and a variance of ψ . We include random effects for cohort, and periods within countries. For countries themselves, we use fixed effects (dummy variables). The fixed effects reduce the computational burden and are necessitated because such effects are observed in virtually all extant work on the EU. The *cross random effects* model thus allows us to take account of

⁴ This structure differs from a hierarchical nested structure in that individuals' membership in clusters at one level does not preclude membership in clusters at another level (each country is measured in each period and each cohort is measured in each period and country).

dependencies within the data and efficiently estimate life-cycle, cohort, and period effects, while controlling for other relevant variables.

The model described can be expressed symbolically as:

$$Y_{ictg} = \beta'x + \zeta_{1g} + \zeta_{2ct} + \varepsilon_{ictg}; \quad \text{Eq. 1}$$

$\zeta_{1g} \sim (0, \psi_1)$ the random effect for cohort ;

$\zeta_{2ct} \sim (0, \psi_2)$ the random effect for period in each country ;

$\varepsilon_{ictg} \sim (0, \theta)$ the individual level error term (residual) ;

Where:

i = individual, t = period,

c = country, g = cohort.

Y is the dependent variable and β is a vector of coefficients on the independent variables, x , plus a constant term.

We operationalize this model using data measured at the individual level from the Eurobarometer Mannheim trend file updated with more recent Eurobarometer surveys, covering the years 1976-2008 (for details about the data, variable wording and coding, see Appendix). The data allow us to analyze fifteen countries, for nine of which we have data across all years. The dependent variable, support for the European Union is measured using the Eurobarometer membership question '*Generally speaking, do you think that (your country's) membership of the European Community is ... a good thing, a bad thing, neither good nor bad*'.

To estimate the effect of life-cycle on attitudes towards the EU, we include age as an independent variable in the model. Because of the small number of individuals over the age of 85 in the surveys, the uncertainty about estimates for these individuals increases substantially, and thus we focus our analysis on respondents age 15 to 85. Our expectation is that the coefficient on age is negative, meaning declining support throughout the life-cycle.

The random effects for cohort and period allow us to estimate the effects of these factors on EU support. In devising the cohorts, we use as generational markers those events that give a qualitative distinction to different periods in the development of the EU. We distinguish between six different cohorts. The individuals of the first cohort are those that came of age before the first integrative steps were taken in 1952 (i.e. were age 15 or older in 1951). The second and third cohorts are those that came of age between the Treaty of Paris and the Merger Treaty, and, those that came of age between the Merger Treaty and the adoption of the Single European Act (SEA). We do not expect that the second and

third cohorts will evince qualitatively distinct attitudes as the Merger Treaty did not represent a significant change in Europe of the same scale as the other integrative steps. However, we were concerned that by grouping the second and third cohorts into a single cohort encompassing thirty-two years, and thus effectively two generations, we might miss a significant shift in the data. In an effort to be conservative, we therefore split these individuals into two cohorts.⁵ Our fourth cohort is comprised of those that came of age between the SEA and the Maastricht Treaty, and thus those coming of age once Europe had begun to acquire a tangible identity (i.e. a flag, an anthem, Europe day, and so on). The fifth cohort is comprised of those coming of age between Maastricht and the introduction of the Euro, and thus those coming of age in an EU in which the freedom to live, study, work, claim benefits and vote in any member state had become a defining characteristic of the EU.⁶ And finally, our sixth cohort is comprised of those coming of age after the introduction of the Euro. This sixth cohort includes those who have come of age in a Europe where there is not only a tangible identity and freedom of movement, but where there is a persistent, daily reminder of an integrated Europe (for a complete breakdown of the six cohorts see Appendix).

Period is simply the year of the survey, but we identify each country-period combination uniquely, producing 416 separate random effects.⁷ We also include controls derived from extant work on attitudes towards the EU: an individual's left/right political orientation, gender, occupation, education, and country fixed effects.⁸ While income has often been shown to be a significant predictor of attitudes towards the EU, changes in the way income has been measured across time and countries in the Eurobarometer data prohibit use of an income measure in our analysis. Income categories have been added, and the intervals changed over time, thus the income data lack a common metric (such as income quartiles, for example) rendering interpretation of unit changes in income categories nonsensical. However, with both education and occupation included in the analysis, the omission of income should not constitute a significant hurdle to accurate model estimation (see Appendix for details of the independent

⁵ We have run the model with both specifications and there is no substantive distinction. The two cohorts are statistically significantly different, but substantively, the differences are small.

⁶ Because of the salience and symbolic effect of the physical introduction of the Euro, we use its physical introduction in 2002 as the cutoff date rather than its introduction as an accounting device in 1999.

⁷ Since it is age and cohort in which we are interested, we do not report the 416 period effects, only the estimated standard deviation of their distribution— $\sqrt{\hat{\psi}_1}$. The detailed results are available from the authors upon request.

⁸ For an overview of individual level determinants of attitudes towards the EU, see Hooghe and Marks, 2005.

variables).⁹ Finally, in coding the data, we follow the convention in cross random effects models of centering all continuous independent variables (age and left/right orientation) at the grand mean of the pooled data allowing us to interpret the random cohort and period effects as deviation from the overall mean (Yang and Land, 2008).

Results

We estimate Equation 1 using two different specifications, with and without the cohorts, in order to determine whether cohorts provide additional explanatory power.^{10, 11} All control variables are included in both models, although only the results for the variables of interest are reported in Table 1. The full results for all variables are displayed in Table A of the Appendix. In Model 2, the random effect for cohorts is significant, and the Bayesian Information Criterion (BIC) statistic is lower in the model with the cohort. The cohorts, therefore, do provide additional explanatory power and Model 2 can be said to be preferred over Model 1. The discussion of the results will therefore focus on Model 2.

<Table 1 about here>

We can interpret the independent variables as we would in OLS—a one unit change in the independent variable results in a $\hat{\beta}$ unit change in the dependent variable when all variables are held constant at their means. Since our variables are centered at the grand mean, the constant (all variables at zero) represents the level of support for the respondent with the mean value of all the independent variables (or the excluded values for dummy variables).

Consistent with most extant work on the EU, in both models age is negatively signed and statistically significant, the older an individual the less supportive they are of the EU. To provide a better sense of the results, Figure 1 below graphs the results of the model for cohort and age.

<Figure 1 about here>

⁹ We did attempt to include the income variable for those countries and years where the measure was most comparable. The results were not substantively different from our findings here, but did substantially reduce the number of countries and periods able to be included in our analysis.

¹⁰ The model is estimated in Stata 10 using the xtmixed command. Estimation routines and data are available from the authors on request.

¹¹ We also estimated separate models for each successive wave of integration – that is, we estimated the model once for the nine countries for which we have data at all time points (the original six plus Denmark, Ireland and the UK), a second time including the third wave countries (Greece, Spain and Portugal) and a third time including the fourth wave countries (Austria, Finland and Sweden) – and there was no substantive differences in the results. All analyses not presented here are available from the authors on request.

The predicted age effect ranges from -0.015 at age fifteen to -.083 at age eighty-five and thus across an individual's lifespan we can expect support for the EU to drop by approximately 0.07. Although at first glance this effect may appear quite small, it is approximately 15% of the average variance in the dependent variable for a country/year (.47). It should also be remembered that the model was deliberately specified to generate conservative estimates of both life-cycle and cohort effects, to make for a more demanding test of an age effect.

The random effects are not directly interpretable from the information provided in Table 1. Overall, cohorts and periods are statistically significant. The magnitude of the cohort effects (the Best Linear Unbiased Predictions of the random effects—BLUPs) is displayed alongside age in Figure 1. The effect for each cohort, in ascending order, is: -.030, -.048, -.059, -.013 .032, 0.120 – and all are statistically significantly different from one another.¹² The predicted random effects increase (if positive) or decrease (if negative) the level of support beyond the predicted level of support based on the independent variables. For example, for an average Frenchman born before 1938, his predicted support would be 2.51 (with a period effect of zero), but were he born after 1987, his predicted support would be 2.65. Again the effect may appear small but it is 30% of the average variance in the dependent variable for a country/year.

The predicted cohort effects are interesting in that there is a small decline in support for the EU across the early cohorts. That is, the cohort that came of age before the initiation of the integration process is slightly more supportive of membership than either of the cohorts that came of age between the Treaty of Paris and the SEA. Indeed, the second and third cohorts are progressively less supportive of the EU and it is only with the cohort that came of age after the SEA that we observe a break in the trend of declining support for the EU. These results are almost certainly being driven, at least in part, by differences in attitudes between individuals that had direct experience of the deprivation of the Great Depression and the horrors of World War II and those that did not. The European integration process was conceived as a vehicle to end war in Europe and as such can be expected to have particular appeal to those that lived through the war. Accordingly, although the first cohort had more experience of national autonomy than any of the subsequent cohorts, that experience was not wholly positive and any nostalgic feelings that subsequent cohorts might have for a world of less integration, is least likely to be evident for these

¹² We use the square root of the variance of the prediction errors (the comparative standard errors) to calculate confidence intervals for the BLUPs. There are no overlapping confidence intervals among the predicted cohort effects at the 95% level (with only cohorts 1 and 4 overlapping at the 99% level).

individuals. That said, it should also be noted that while there are statistically significant differences between each of the first three cohorts the magnitude of those differences is very small, there is relatively little difference between each of the first three cohorts.

Of more importance, the cohorts that came of age after the SEA are progressively more supportive of the EU than their immediate predecessors. Indeed, there is a 7.2% increase in the average level of support for the EU between the cohort that came of age in the period 1952-1971 and the most recent cohort, born after 1986. Thus, cohorts that came of age after the EU had begun to acquire an identity (e.g. the flag, Europe Day, driving licenses, passports, a currency, and so on) are significantly more supportive of the EU than those that came of age when the EU lacked such an identity. Moreover, for these later cohorts, the upward trend in support from one cohort to another is both comparatively large and increasing in each subsequent cohort.¹³ It may be tempting to conclude, and the results certainly imply, that future cohorts will demonstrate even higher levels of support for the EU. While certainly a possibility it should also be stressed that the period effects appear more substantial than the age effects. The estimated period random effects by country (BLUPs) appear in Figure 2 below.

<Figure 2 about here>

As is clear from the graphs in Figure 2, the period effects vary quite markedly from country to country. Consistent with extant work, we observe a tendency towards lower support for the EU in the 1990s than the 1970s in the original six and higher support in the 1990s than the 1970s for Denmark, the UK and Ireland (see for example, Eichenberg and Dalton, 2007; Down and Wilson, 2008). Critically, however, with the exception of Austria, Finland and Sweden, for which we have only limited data, support fluctuates substantially over time in every country. In short these period effects appear idiosyncratic—although there is a general trend in the positive direction, short-term forces are just as likely to propel support upward as downward.

The results discussed here help explain how extant work has generated seemingly contradictory results for an age effect – that is, earlier work showing either no relationship or a significant positive

¹³ The results are remarkably similar when the analyses are run separately for each of the fifteen member states. Thus, the more recent cohorts are more supportive of the EU than are earlier cohorts (only in Greece is this not the case) and in almost all countries there is a clear upturn in support amongst post-SEA cohorts (Greece, Ireland and Spain are exceptions, but in these countries support is relatively static post-SEA and was high prior to the SEA). Results of the individual country analyses and accompanying graphs are available from the authors on request.

relationship between age and support while later work shows a significant negative relationship.¹⁴ The earlier analyses employed Eurobarometer data from the 1970s and 1980s, meaning that the first three of our cohorts would have been present in the analyses, cohort four would have been partially represented but cohorts five and six would be absent. This has the potential to create a conflict between a cohort and life-cycle effect. While support may decline over the life-cycle, implying age is inversely related to support, the more positive orientations of the pre-integration generation, relative to subsequent cohorts, could generate a positive relationship between age and support. Accordingly, the effect for life-cycle could conflict with that for cohort. Consequently the sign and significance of an age variable might prove sensitive to the scope of the data in the earlier analyses. In contrast, more recent analyses, that include the more recent and relatively more supportive cohorts, generate a clear negative relationship between age and support. Thus, with these later cohorts included the overall effects of life-cycle and generation are consistent – that is, the young are more supportive than the old.

To both further probe and to better illustrate the point, we ran OLS regressions on the membership question using age and the same set of controls employed in the preceding analyses, along with country fixed effects, for each year from 1975-2008. We then divided the regression results into three categories, instances in which age was positive and significant, instances in which age was negative and significant, and, instances in which age was not a significant predictor of attitudes towards membership, summed across each decade. The results are summarized in Table 2 below.

<Table 2 about here>

The only instance in which age proved a positive and significant predictor of attitudes towards membership occurred in 1975, the earliest date for which we have data. This is the year in the dataset in which the oldest cohort can be expected to feature most prominently and in which cohorts four through six are entirely absent.¹⁵ For three of the five years in the 1970s, for all ten years in the 1980s and for four of the first five years in the 1990s (i.e. 1991-4) age is not a significant predictor of attitudes towards membership. In stark contrast, from 1995-2008 the age variable is a significant negative predictor of attitudes towards membership in twelve out of fourteen years. In short, we observe age move from having

¹⁴ On the young being more supportive than the old see, Brinegar and Jolly, 2005; Fligstein, 2008; McLaren, 2002 and 2006; Rohrschneider, 2002; Steenbergen and Jones, 2002. On the converse and indeterminate results see Andersen and Reichert, 1995; Gabel 1998a.

¹⁵ It should be noted that for 1975 we lack data on left/right self-placement (which is why we exclude this year from our random effects models), and so cannot rule out the possibility that this may be affecting the result for that year.

a largely indeterminate association with support to having a clear negative association as the cohort composition of the data changes. Thus, without taking into account the generational components of the data, cross-sectional analyses may conflate life-cycle and cohort effects in a single variable age.

Lastly, we should also address the implications of our analysis for future support of the EU because of the current and quite pronounced population ageing process in Europe. In the context of a rapidly aging population, the life-cycle effect and the cohort effect have contradictory implications for future support of the EU. The life-cycle effect implies that as the population ages so support for the EU will decline as the elderly comprise an ever larger proportion of the population. Yet, because the more recent cohorts are more supportive than older cohorts, as the latter die out so we can expect support for the EU to increase into the future. While the results of our analysis suggest that the cohort effect is more significant, substantively, than the life-cycle effect, which of the two actually predominates will also be contingent on the extent of the population ageing process. Put simply, the more extensive the population ageing process, and thus the smaller the proportion of the population accounted for by the later cohorts relative to earlier cohorts, the greater the impact of the life-cycle effect relative to the cohort effect.

To provide some idea about the possible long-run implications of life-cycle and cohort in the context of an aging European population, we provide a simulation of the change in these effects from 2007 to 2022 using our model estimates, current population estimates, and current death rates. We gathered data from 2007, for each country in our analysis, of the number of people at each age from 0 to 85 years and the percentage that died at each age.¹⁶ Based on these, we then predicted the number of people at each age between 15 and 85 for the years 2008-2022 (we limit our projections to the same age range—15 to 85 year olds—on which our estimates are based). We adjusted the effect of cohort and age by the numbers of people at each age in the population of each country, holding all other factors constant. To ensure our estimates were conservative, we assumed that all future cohorts have the same effect as the last cohort estimated in the original data (the Euro cohort) and that death rates for each age will be the same in 2022 as in 2007, despite the fact that our model suggests that future cohorts will likely be more supportive than their predecessors and that demographic trends suggest death rates will decline. The results for the combined populations of the countries in our study are displayed graphically in Figure 3.

¹⁶ Data are from the Eurostat web database for national demography and mortality indicators. Population size is measured using the *demo-panj* data (population by age on January 1 of 2007). Death rates were calculated using the *demo-majec* data (deaths by age at last birthday). These data are available at <http://epp.eurostat.ec.europa.eu/portal/page/portal/population/data/database> [last accessed 5/22/09]. In the few cases where Eurostat data were missing, we were able to collect statistics from *The Human Mortality Database* at <http://www.mortality.org/> [last accessed 5/22/09].

<Figure 3 about here>

As shown by the solid line, the effect of age alone—no cohort effect—implies a slight decline in support over the 15 year period. If cohort and period effects were to remain constant, support is expected to decline by 0.003 over the period as a function of the life-cycle effect. This is because as the population ages, a larger proportion of Europeans are in the latter part of the life-cycle which is associated with lower support levels than for the young. In other words, the decline of the young as a proportion of the population causes the balance of opinion to become more negative over time. In contrast, the cohort effect alone—no life-cycle effect—(the dashed line) indicates we should expect an increase in support of 0.03 over time. This conservative estimate is almost four and a half times the variance in the average annual level of support across our sample of Western European countries from 1976 to 2008 (.0068). As the more recent, more supportive cohorts begin to replace their less supportive predecessors, overall support for the EU will increase.¹⁷ When these two effects are combined, the cohort effects clearly dominate, increasing support in Western Europe by .028 or more than four times the variance in the average annual level of support across our sample; they are carried throughout the life-cycle, thus muting the effect of the aging process. So, while the life-cycle effect, in combination with an aging population, lowers support, this effect is clearly outweighed by the higher levels of support among younger cohorts. Even if future generations fail to show levels of support as high as those born in the 80s and 90s, if current population trends persist, the more Europhilic generations will have an enduring positive effect on levels of support for Europe for some time to come.

However, one potentially important qualifier is in order. While we can expect support for the EU to increase in the future as a consequence of cohort effects outweighing life-cycle effects, this only constitutes part of the story when considering public opinion on the EU. Because older individuals are more likely to participate politically, and particularly to vote, than their younger counterparts, they are also likely to be more politically relevant than their numbers alone would suggest. Political parties pay attention to those that participate politically and if the more pro-EU young fail to engage to the same extent as their less supportive elders, it is the latter's preferences that are likely to inform the positions parties adopt on the EU and thus the future of the EU. Accordingly, Euro-enthusiasts should not be too sanguine about the prospects of future party support for the EU, in the short-term, it may even decline in

¹⁷ By 2022 all of cohort 1 and half of cohort 2 will have been replaced by new cohorts in our simulation, as we only include those age 85 and younger.

the wake of higher aggregate support if that support is concentrated amongst the less politically active young.

Conclusion

We have shown not only that age effects support for the European Union but that an individual's attitudes are determined by both the stage they are at in the life-cycle and the generation into which they were born. The opportunities afforded by the EU appear to undergird a life-cycle effect in which support declines as individual's age and those opportunities consequently become less relevant. The cohort effect is slightly more complex. The generation of Europeans that lived through the Great Depression and the Second World War are more supportive of the EU than immediately subsequent generations. Indeed, across the first three cohorts we observe a small but significant decline in support from one cohort to the next. That is, the EU receives progressively less support the further removed a generation is from the experience of the Depression and the War. Yet, when the EU begins to acquire a visible identity, cohorts begin to evince progressively higher levels of support than their predecessors. Each new generation that comes of age from the mid-1980s onwards is significantly more supportive of the EU than its immediate predecessor.

We also observe, however, that in the context of European demographic changes these age effects work at cross-purposes. The ageing of the population implies a decline in future support, while the replacement of older cohorts by more recent cohorts implies an increase in future support. The cohort effect appears to predominate suggesting we can expect an increase in popular support for the EU in the future. Interestingly, however, given the greater propensity for political participation on the part of the old, we cannot rule out demographic change contributing to political parties actually adopting more negative positions on the EU in the future, even if public opinion becomes more positive.

In addition, we have been able to explain the apparent inconsistency between the age-support relationship suggested by earlier analyses (i.e. positive or indeterminate) and the relationship evident in later analyses (i.e. negative). The important general point is that at times life-cycle and cohort may have theoretically contradictory effects that in empirical analyses result in an indicator of age being incorrectly identified as unrelated to the phenomenon of interest. Accordingly, sensitivity to the potential for life-cycle and cohort effects to operate at cross-purposes is an important consideration for future work since a non-significant result need not mean age is not a significant determinant of a given attitude. Put simply, the precise meaning of the age variable needs to be properly specified in both theory and measurement. In relation to the EU more specifically, our analysis suggests not only that age should be included in all

future models of support but that if it proves not to be a significant predictor of attitudes the results warrant closer examination.

Finally, contemporary work has also begun to address variation in attitudes across a variety of 'EU issues', particularly support for different policies being set at the EU level (see for example, Hooghe, 2003). Given the clear generational differences in attitudes towards membership of the EU, it may be fruitful in such analyses to distinguish between cohorts, to identify whether, where and to what extent there are generational differences in respect to preferences over the location of policy-making. Put simply, we ought to address whether there are generational differences in the willingness of individual's to see a given policy set at the EU level. If younger cohorts prove generally more supportive of a particular policy being set at the EU level then even if overall support is not strong today it may well emerge in the future. Alternatively, if there is no generational difference in attitudes to a policy being decided at the EU level and support is lacking, we may well be observing an important limit or boundary to future integration in the given policy area.

Table 1:
Cross Random Effects Models of Life-Cycle, Cohort and Period Effects
Support for Membership of the European Union

	Model 1 No Cohort	Model 2 w/Cohort
Age	-.001* (.0001)	-.001* (.0001)
Constant	2.52* (.040)	2.55* (.033)
Random Effects:		
Cohort $\left(\sqrt{\widehat{\psi}_1}\right)$		.061* (.018)
Year $\left(\sqrt{\widehat{\psi}_2}\right)$	.123* (.004)	.124* (.004)
Residual $\left(\sqrt{\widehat{\theta}}\right)$	.675* (.001)	.675* (.001)
N	739126	739126
Log Likelihood	-759581*	-759183*
BIC	1519582	1518799

*p < .001. Standard errors in parentheses.

NB: Full results including controls are displayed in Table A, Appendix.

Figure 1:
Predicted Support for Membership of the European Union,
by age and cohort

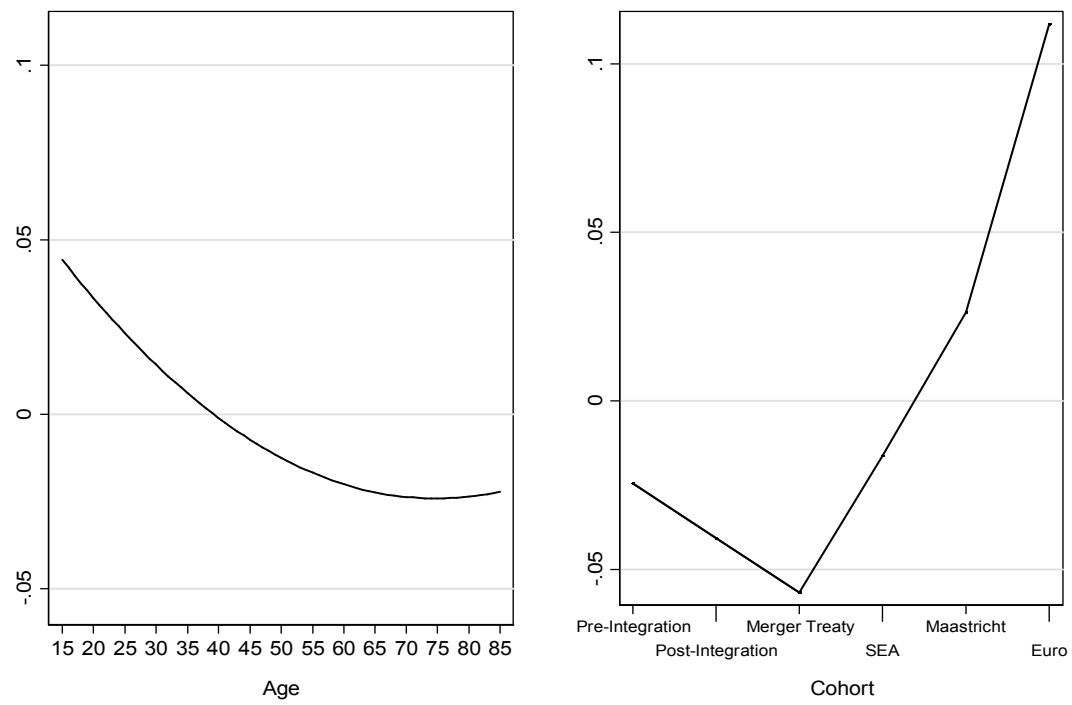


Figure 2:
Predicted Period Random Effects,
by member state

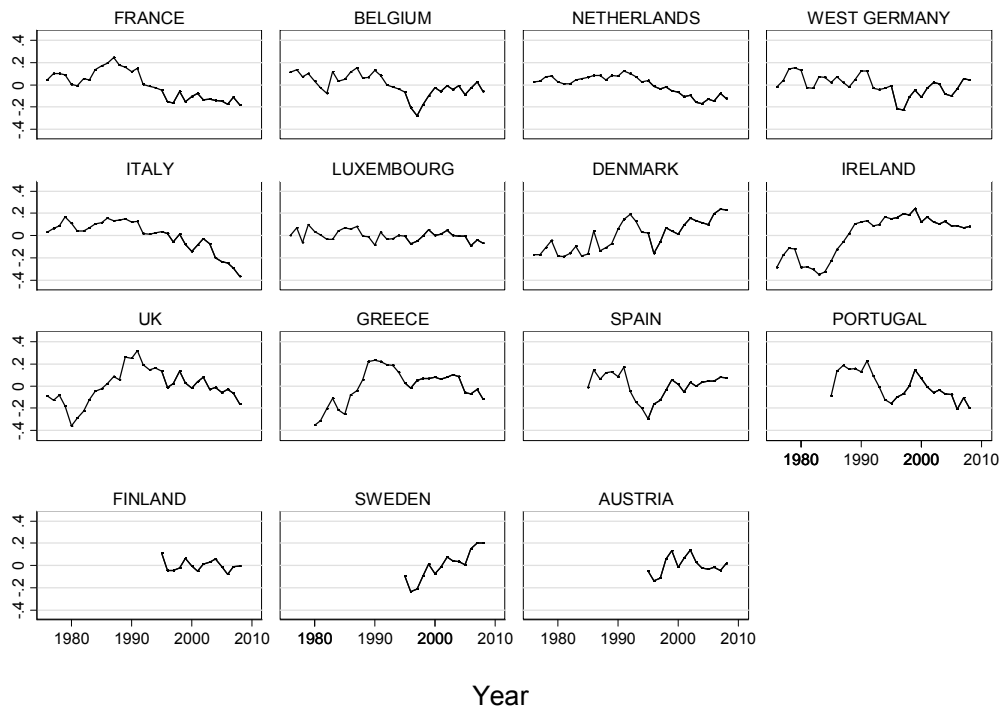
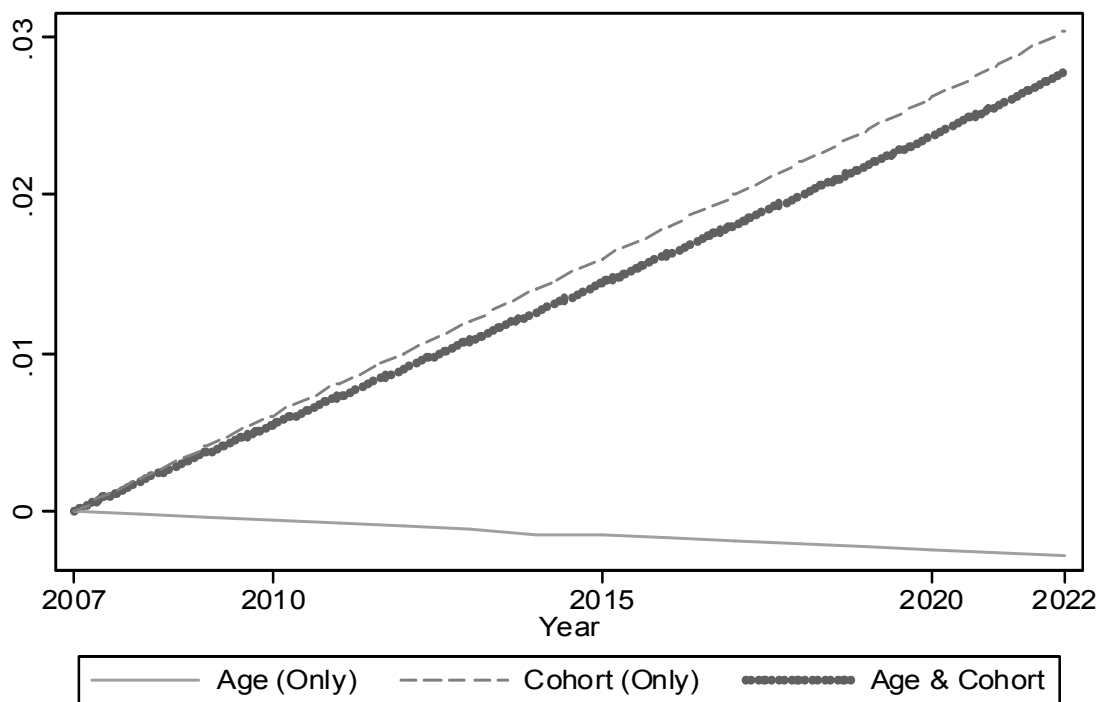


Table 2:
Sign and Statistical Significance of Age - Support for EU Membership, 1975-2008
(Proportion of Years, per decade)

	1970s (5)	1980s (10)	1990s (10)	2000s (9)
Significant and Positive	20%	-	-	-
Significant and Negative	20%	-	60%	89%
Not Significant	60%	100%	40%	11%

Significant if $p < 0.01$. NB: Number of years per decade in parentheses.

Figure 3:
Predicted Effects of Population Change on Support for Membership in the European Union:
Life-Cycle & Cohort Effects, 2007-2022



APPENDIX

Data

The Mannheim trend file (ICPSR study number 4357) covers the year 1970-2002. We are unable to use data from years prior to 1975 because key variables used in the analysis are missing in those years. We merge Eurobarometers 58.1, 59.1, 60.1, 61.0, 62.0, 63.4, 64.2, 65.2, 66.1, 67.2, 68.1, and 69.2 (those containing the membership trend question) into the Mannheim data to extend the dataset to 2008.

Dependent Variable

Responses to the Eurobarometer membership question that address perceptions of country benefits from the EU. That is, *‘Generally speaking, do you think that (your country’s) membership of the European Community is ... a good thing, a bad thing, neither good nor bad.’*

Independent Variables

Definition

Age	Years of age (centered) Range from 15 to 85
Cohort	Pre-Integration Cohort - Born on or before 1938 Post-Integration Cohort - Born between 1939-1951 Merger Cohort - Born between 1952-1971 SEA Cohort - Born between 1972-1977 Maastricht Cohort - Born between 1978-1986 EMU Cohort - Born on or after 1987
Left/Right	Left/Right self placement, (centered)
Gender	Female “1”, Male “0”
<i>Occupation:</i>	<i>Categories refer to the Mannheim data codes</i>
Professional	EB occupation categories 120, 210, 132, 220
White Collar	EB occupation categories 230, 310, 311, 312
Service	EB occupation categories 320, 321, 322
Petit Bourgeois	EB occupation categories 130, 131
Blue Collar	EB occupation categories 410, 411, 412, 413
Farmer/Fisherman	EB occupation categories 110, 111, 112
Homemaker	EB occupation categories 500, 510
Student/Military	EB occupation categories 520, 521, 522
Unemployed	EB occupation categories 540
Retired	EB occupation categories
<i>Education:</i>	
Education (High)	Stopped education when older than 20
Education (Low)	Stopped education when 15 or younger
Education (Medium)	Stopped education between 16-19 years

Countries and Years Included In Analysis

Belgium, Denmark, France, Germany, Ireland, Italy, Luxembourg, Netherlands, United Kingdom	1976-2008
Greece	1980-2008
Spain, Portugal	1985-2008
Austria, Finland, Sweden	1995-2008

Table A:
Cross Random Effects Models of Life-Cycle, Cohort and Period Effects
Support for Membership of the European Union

	Model 1 No Cohort	Model 2 w/Cohort
Age	-.001* (.0001)	-.001* (.0001)
Left/Right	.025* (.000)	.024* (.000)
Female	-.060* (.002)	-.060* (.002)
Professional	.106* (.004)	.117* (.004)
White Collar	.058* (.003)	.068* (.003)
Service	-.021* (.004)	-.011 (.004)
Petit Bourgeois	-.015* (.004)	-.005 (.004)
Blue Collar	-.068* (.003)	-.058* (.003)
Farmer/Fishermen	.002 (.006)	.009 (.006)
Homemaker	.009 (.003)	.016* (.003)
Student/Military	.081* (.004)	.055* (.005)
Unemployed	-.091* (.004)	-.085* (.004)
Education (Low)	-.085* (.002)	-.088* (.002)
Education (High)	.093* (.002)	.098* (.002)
Austria	-.308* (.040)	-.312* (.040)
Belgium	.101* (.031)	.101* (.031)
Denmark	-.260*	-.259*

	(.031)	(.031)
Finland	-.311* (.040)	-.316* (.040)
Germany, West	.036 (.031)	.037 (.031)
Greece	.014 (.032)	.015 (.032)
Ireland	.125* (.031)	.125* (.031)
Italy	.199* (.031)	.200* (.031)
Luxembourg	.256* (.031)	.255* (.031)
Netherlands	.238* (.031)	.239* (.031)
Portugal	.129* (.033)	.128* (.033)
Spain	.148* (.033)	.144* (.033)
Sweden	-.428* (.040)	-.433* (.040)
UK	-.321* (.031)	-.322* (.031)
Constant	2.52* (.040)	2.55* (.033)
Random Effects		
Cohort $\left(\sqrt{\widehat{\psi}_1}\right)$		.061* (.018)
Year $\left(\sqrt{\widehat{\psi}_2}\right)$	.123* (.004)	.124* (.004)
Residual $\left(\sqrt{\widehat{\theta}}\right)$	.675* (.001)	.675* (.001)
N	739126	739126
Log Likelihood	-759581*	-759183*
BIC	1519582	1518799

*p < .001. Standard errors in parentheses. NB: Reference categories for the dummy variables are Male, Retired, Education (Medium) and France.

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